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THE JOURNAL OF PHILOSOPHY

THE MASKS OF SOCIETY: THE GROUNDS OF OBLIGATION IN THE SCIENTIFIC ENTERPRISE

I

OF any belief which a man may hold it may be asked, With what *right* does he hold it? It is the most fundamental demand of rational inquiry that this question, whenever asked, shall require an answer. The question may be postponed, it may remain for a time uncomprehended; it can be permanently evaded only at cost of disqualifying the inquiry from its title to rationality. Wherever that title is claimed, the question, With what right?, may be significantly asked; for in the claim to rationality a right has been asserted, and in knowledge as in law this right must be established. No less in matters of belief than in matters of conduct, rights and claims may fail to coincide: a man may hold beliefs to which he has no right, he may have a right to beliefs which he does not hold. The right to hold a belief is not established by the circumstance that the belief is held, nor does the failure to hold it imply that the right is not available. How, then, if not from the simple holding, does the right to hold a belief arise? It arises from what is commonly described as *proof*. Those beliefs are accounted rational which are capable of being proved. Question a man's right to hold a belief, he will seek to justify the right by citing reasons which support the belief. The reasons, if they suffice, will constitute a proof; the proof confers the right. Where no proof is possible, there can be no question of right at all.

A belief unsupported by reasons is commonly said to be held on faith—that is, without right, *sine iure*. The description is not, at least it is by no means necessarily, invidious. That men hold some beliefs without claiming rationality for them is as neutral a circumstance as that they have a capacity for appetite as well as reason. Among the affirmations of which men are capable there are even some for which no reasons, in the ordinary acceptation of the term, are either necessary or possible. No philosophy ever succeeds in escaping the final contingency of its own foundations.

That is why any philosophical argument which attempts to justify these foundations will inevitably appear circular. For in the end a philosophy seeks only to understand that which it already believes.[1] The corrosions of a universal doubt which canceled all belief would have canceled at the same time the sole motive of philosophy. Belief is the occasion of philosophy, not its achievement. Therefore, the tradition of philosophy which has made an affectation of rigor in pronouncing *dubito, ergo sum* is not likely to perceive that its most redoubtable champion, David Hume, is nearer to Anselm of Canterbury than to Descartes. Let it be asked, With what right do the sciences of nature seek to predict nature? The answer is, it must be admitted, By no right whatever. For of that future which is predicted we do in fact know nothing, unless it be assumed that the past of the world, of which we have had experience, supplies a clue to the future, of which we have none. Experience of nature will enable us to predict nature only on the assumption that nature behaves uniformly on all occasions, so that the part of its career which has been observed may serve as evidence for the part of its career which has not. Yet for this belief in the uniformity of nature, which underlies the simplest generalization from experience, there neither is nor can be proof in any ordinary sense. Reason will not prove it, for there is nothing contradictory in supposing it false. Nor can experience supply to it any confirmation which will not itself have presupposed the uniformity of nature and therefore have begged the question. That was Hume's momentous bequest to philosophy, the annihilating perception that the fundamental principle of empirical knowledge is amenable to no proof, that it is therefore affirmable by no right. Of such principles it is sufficient to say only that they are not part of the set of beliefs which men rationally affirm. With respect to the beliefs for which men claim rationality the question, With what right do they claim it?, is admitted in all cases to be relevant, and the admission of this question is equivalent to the assertion that the notion of legality, of obedience to rule, in some sense presides over the rational enterprise.

There must exist, in any rational inquiry, a ground for making the distinction between beliefs which are held *de iure* and beliefs which are held merely *de facto*. For the rationality of an inquiry

[1] Cf. S. Anselmi, *Proslogion*, cap. I, in *Opera Omnia*, ed. F. Schmitt (Thomas Nelson: Edinburgh, 1946), vol. I, p. 100: "Non tento, domine, penetrare altitudinem tuam, quia nullatenus comparo illi intellectum meum; sed desidero aliquatenus intelligere veritatem tuam, quam credit et amat cor meum. Neque enim quaero intelligere ut credam, sed credo ut intelligam. Nam et hoc credo: quia 'nisi credidero, non intelligam.' "

consists in an exclusion, in laying down the condition that no belief shall be accepted without title. A belief can be justified, can acquire its title, only from the reasons which support it. In short, in order to be accounted a rational belief, it must be amenable to proof. But what shall be allowed to constitute a proof? It is possible to marshal the reasons which support a belief only on the condition that there is a rule, understood or tacitly assumed, which determines with precision what shall be accounted a proper reason. The will to believe can never be accounted a proper ground of belief, since on this ground any belief will appear to have the same claim to legitimacy as any other, provided only someone choose to affirm it. The will to believe will justify no belief for the simple reason that it will justify every belief equally. Unless a rule be stipulated which defines the propriety of inquiry, which admits some reasons and excludes others, the normative distinction between faith and reason must disappear. For, in matters of belief as in matters of action, if everything be proper, then there is no propriety.

My child draws. From the tip of her crayon flow forth brave images of a faerie world which she summons, in purest detachment from her nest in nature, out of sovereign fantasy. Asked why she has thought to introduce into her drawing yonder blob of color, she will answer, succinct and imperturbable, without cessation of her work, "Just because." Let it be confessed that the question, as asked, is illicit. It is certain that the answer, as given, is unsatisfactory. The proper answer was to have answered not at all, for if the answer cannot be found in the brave new world where the blob was found, there is no answer. But the answer "Just because," which she finds invariably effective in quieting an intruder, has never yet succeeded in satisfying one. She is asked to give a reason, but the reason which she gives will not suffice to distinguish a legitimate blob from an illegitimate one. It will justify any blob, or none, and she is content to leave her tedious questioner suspended thus astride his query, uncertain in conscience whether he has been answered or mocked.

In the procedure of a court of law a set of rules enables the court to decide what evidence shall be admitted into its proceedings. The function of the court is to render a decision upon a question of law. But the question of law (*quid iuris*) can be decided only after the question of fact (*quid facti*) has been determined, for until it be known what actually are the circumstances in the case that is being judged, no judgment concerning the application of the law can be rendered. To determine the question of fact it is indispensable to marshal evidence, and since the litigants, who are

to produce the evidence for the matter in dispute, cannot be presumed to be disinterested, the disinterestedness of the inquiry is governed therefore by rules. These rules, the rules of evidence, do not assuage the dispute itself: they succeed only in civilizing its conduct. They supply purely formal criteria: they do not depend upon the kind of case which is being heard, nor do they vary with it. They nevertheless lay down, in advance of all testimony, the conditions under which testimony will be heard. They declare, in effect, the conditions of relevance for that inquiry: any evidence is admissible which they do not exclude, but no evidence which they do exclude can, for that inquiry, figure as evidence at all. Judge and counsel alike are bound by them: the pleading which offends against them is overruled; the judgment which abridges them may be appealed. Such distinterestedness as the inquiry has is entirely dependent upon them. The rules of evidence have, like the principles of the common law itself, evolved out of the experience of the judicial process. Their wisdom in detail is by no means beyond criticism. It is their function alone which is never questioned. Jeremy Bentham was of opinion that, as the rules of evidence do actually operate, they in some instances preclude the very evidence which would enable the facts to be elicited, so that on occasion, where justice is at stake, of all participants in the legal process, the court is methodically the least informed. The objection is not, however, an objection to the need for rules, but an exception taken to the utility of particular rules which prohibit the consideration of evidence clearly relevant but proscribed. The issue is technical. But that it should arise, that the rules of evidence should be capable of being criticized, is philosophically a matter of the greatest possible interest. For it in effect declares that the rules which govern inquiry, which decide what by definition shall be permitted to function as evidence, exist by artifice, by implicit enactment. They oblige only those whom they govern, but these they oblige absolutely, so that what these the governed conceive and do they conceive and do within a normative order which the rules have constituted and circumscribed. The *man* who judges, what shall he believe? He is, like Bentham and like you and me, free to believe what he wishes to believe. But the *juryman* who judges, what of him? He is free to believe only what the rules permit him to believe, and nothing else. The discipline of the rules is the discipline of a mask: it sees light where light is admitted to be seen; to other light, systematically and methodically, it is blind. The *Fiat lux* which God decrees may make light where none was; but, inevitably, the *Fiat lux* which the law decrees must forbid light, even where light is. But suppose the

rules be changed, that this light which was concealed may now be freely entertained? We have but exchanged masks; we do not dispense with one,

> And take upon's the mystery of things,
> As if we were God's spies.[2]

The significant choice is never whether we shall wear a mask, or wear none. It is invariably, Which mask shall be worn?, and with respect to this question the evidence, which as yet is undefined, is silent.

II

Every science whatever is in similar circumstance. It matters not at what epoch it is sought, in what place it is found, by what stamp of mentality it is embraced—a rule of relevance presides over its enterprise. For science, whatever the historical predicament in which it is generated, is on all occasions a form of rationality, and of rationality there can be none where there is no rule of evidence which men are content to regard as binding upon them. Rationality is, in short, a form of commitment. It is not merely behavior, but normative behavior, a behavior in obedience to rule, which is at least implicitly acknowledged as governing its procedure. The rule tacitly acknowledged, which is implicit in the procedure, may be made explicit, so that it is by the agent consciously respected. But that is as little necessary as that I should, in enacting my duties as citizen in society, be ready to discourse on the status of the law in which my duties are prescribed. I on the contrary act dutifully, and only afterwards reflect, if I reflect at all, upon the bond which is immanent in my act and gives my act its character.[3] So, in the procedure of a rational inquiry, I search out reasons that will sustain my beliefs. That rational disposition which demands reasons is nevertheless normative, though I never turn critically back upon it, or attempt to formulate the rule or principle which is immanent in its demand. Yet, in the moment that I attempt to formulate it, I find it no less instructive for what it affirms than for what it excludes. What might be supposed of it, that since it is a rule of evidence, it is therefore neutral in what it prescribes, is precisely what is *not* true of it. On the contrary, it is a mask, a mask which both disciplines and blinds, which must

[2] *King Lear*, V, iii, 16–17.

[3] Cf. *Romans*, 2:14–15: "For when the Gentiles, which have not the law, do by nature the things contained in the law, these, having not the law, are a law unto themselves: Which shew the work of the law written in their hearts, their conscience also bearing witness, and their thoughts the meanwhile accusing or else excusing one another."

inevitably blind because it disciplines the vision that complies with it. *It* is not neutral; it neutralizes only those who act in common obedience to it, and acknowledge it as obligatory upon themselves. But with respect to others, who do not acknowledge its authority, its partisanship is absolute: it is the very rule of partisan policy, which admits what they exclude, and excludes what they admit. The rule which guarantees the disinterestedness of inquiry is not itself neutral with respect to the matter of disinterestedness. A society which would secure for its members an openness of mind must, with respect to the closing of the mind, forbid itself a tolerance which in all other connections it prescribes. Just so, the neutrality of a scientific judgment is its compliance to the common rule which binds all scientists. But this neutrality is the property of the judgment which obeys, not of the rule to which obedience is given; for until the rule declares what is the meaning of neutrality, there can be no distinction made between what is neutral and what is not.

The seas which separate the continents of the earth are also avenues which unite them: every physical barrier is also a physical bond. The distinctions of temperament which separate men and nations are evidently of a different order. For though a man may be transplanted in his proper identity from one soil to another—from Boston to Wichita, from Michigan to Tuscany, from Occident to Orient—his real roots remain still where they ever were. The thistle blooms, careless where its root may strike, in one land as in another. The only accident which can afflict it is a natural accident: its seed is in the wind, its home is where the wind has paused. There it may survive or die: it can never be alienated, it can simply be extinguished. But the man, even if nature suffers him to survive, can still be alienated from his proper element. A man from Wichita may not, without suspending his own identity, experience what it is to *be* an Oriental, a Quattrocento Florentine, or a Massachusetts Yankee. Wherein lies the difference, that the man, whose feet are free, should be nevertheless more rooted than the plant, whose feet are bound? The physical milieu is a neutral stage which permits all that it does not exclude; the human milieu is a partisan affirmation which excludes all that it does not permit. The alien human type, the pattern of humanity which is not one's own, one may not use except at cost of a self-estrangement, except by an act of self-abnegation. If from Wichita to Boston I move more easily than from Wichita to Florence or Peking, that is not because the distance is shorter, but because the rules of belonging to the former are already partly shared. That is the decisive feature of the human condition, that a man's roots

are not determined by where his body is, but by where his allegiances are placed.

It is this predicament which is disclosed at large in the history of philosophy. Why otherwise should philosophy be found to have a history, save that in every historical epoch it reconstitutes its task according to rules which it has legislated for itself anew? The transformations of the history of philosophy are, technically, transformations of method. All of the radical collisions of philosophic temper, which fatefully divide men into sect and party and nation, and history itself into peoples and epochs, have their origin in the circumstance, that what men choose to regard as rules binding upon them, in the pursuit of truth no less than in the pursuit of justice, have varied in the human career. The decisive method of any science is its rule of evidence. Where no rule is, there also no science can be. For truth has no meaning whatever except in relation to evidence, and will vary as evidence is variously defined. The grand divisions of philosophy—divisions which separate whole epochs of reflection, the Greek from the medieval mentality, and the modern mentality from each of these; divisions within an epoch, which estrange an Anselm from an Abelard; divisions out of epoch, of Realist from Idealist, of Rationalist from Empiricist, of Naturalist from Transcendentalist; divisions so radical and profound that all philosophy as we know it does but walk within their precinct—what shall one make of these divisions which offer themselves as commentary on the self-same world, or on the grounds of knowledge within it? These are the pregnant historical acts wherein the principles of the rational enterprise are drawn forth with an explicitness which, except at intervals of insight, when the human vision is relentlessly self-critical and self-aware, men do not countenance. They are what make of all philosophy an ultimate confession, "that maketh men to be of one mind in an house."[4] The sciences of nature, which represent the modern genius, do not pass beyond these divisions; they do not reach them. They work within them, taking sides, but (since, circumstantially, all take the same side) taking sides without awareness of it, taking sides unconfessed, as men in society do everywhere ally themselves in enacting their duties, and act honorably and well, without asking for the principle which makes their duties what they are. The philosophers, at whose hands the divisions have been drawn, are all alike rationalists committed—Bacon as well as Descartes, Hume no less than Spinoza. Which is only to say, that each enacts the philosophic

[4] *Psalter*, 68:6.

function, though each enacts it in a different way: each would have a reason to justify his belief, but by each the rule which admits reasons is differently defined.

Properly, a science has no history: it has only an annal. It either evolves or dies. It may progress, it may revise its assumptions, it may expand its purview so as to penetrate into domains where formerly it had no place. But in its total career of expansion it preserves its essential identity unaltered. The norm of method which presides over its expansion is fixed; it is only the execution of the norm that is permitted to vary, as the prowess of its executants is sharpened, or the direction of their interests focalized. It is the same science, and those who execute its tasks belong to the same community of inquirers, because all members of the community respect a common rule. The science evolves so long as this rule is respected; it deceases when this rule is abridged. For the rule of method is the condition of legality in any science. By it alone does the science have its character as a juristic order, into which only those beliefs may be admitted whose legitimacy has been established on proper grounds. The unity of a science is, in short, a juristic unity. The continuity of its annal is a juristic continuity. Juristic unity or continuity is exactly what philosophy's history fails to exhibit. The history of philosophy betrays no common rule, no method commonly agreed upon, which will suffice to link the parts of its story into the unity of a single development. That is why, to those men of science who labor in quiet obedience to a settled rule, the story of philosophy must appear so anarchic an affair. It is all unregenerate protest, all reformation, all revolution: the grit of the barricades is indelible upon it. The act which generates an order of law is not itself lawful. So, the act which civilizes inquiry is not itself civilized. The history of philosophy is not the annal of man's obedience to a rule, not even the annal of his disobedience to one. On the contrary, it is the story of the making of those rules by which obedience and disobedience first become possible. Philosophy's role is to civilize, not to be civilized. Civilization is its task, not its datum, for it must decide at last the question, By what rule shall the making of rules be judged?

III

To argue and to agree would appear to be very contrary attitudes of mind, for it would seem that where men argue they have no agreement, and where men agree they have no argument. That is why Abelard's observation concerning the structure of argument must inevitably appear as a paradox—the paradox, namely, that

no one can argue except on a ground of agreement (*Nemo quippe argui nisi ex concessis potest*). If men dispute, and dispute significantly, concerning any matter, they tacitly concede that there exists some ground beyond dispute upon which they are commonly agreed. Unless this were so, unless there were a common ground to which their mutual consent was given, though they might continue to dispute, they could not dispute significantly. For every significant dispute assumes that the basis for resolving disagreement is independent of either of the disputants: it consists in the admission of a common measure by which each party to the dispute acknowledges himself to be bound. The waging of a war, if it eliminate one of the disputants, may terminate a dispute, it cannot resolve it. It cannot resolve it even if it eliminates both disputants. The matter disputed remains as it ever was; the dispute wants only disputants that it may be resumed. Resolutions of argument, like treaties of peace, can be gained only by consent. A resolution constrained without consent is no peace at all, but only an armed truce, a temporary cessation of hostilities which a more favorable occasion will again unleash. Thus, when it is said that there is no disputing about tastes, the meaning (whether just or not we need not here decide) is that since, in matters of taste, there is no generally acknowledged standard to which the disputants may refer, the argument is empty. The argument is logically irresoluble, since the resolution precisely requires the common ground which is not allowed.

Just so, when philosophers dispute, so far as they dispute significantly, they assume provisionally the obligatoriness of a rule which binds them both. This rule affords to them the common ground which renders the resolution of their argument independent of either of the disputants. The rationality of the dispute depends upon the mutuality of their commitment, and can be assured by no other means; for, though they be divided upon the matter under dispute, the division is not permitted to extend to the ground, or rule of evidence, which alone, by their common adherence to it, can enable their difference to be objectively resolved. This rule, which they commonly admit and place beyond dispute, is logically of a higher order than any matter about which the dispute is conducted. When, therefore, the matter under dispute is what rule of evidence shall govern the admission of evidence into inquiry, the rule of evidence which is discussed is distinct from the rule of evidence which presides over the discussion. The common consent of the disputants to the latter rule is necessary in order to permit their dispute concerning the former rule to be significantly resolved. About the rule which regulates the discus-

sion the disputants must be agreed, in order that, about the rule which is discussed, they might significantly disagree. Let the rule which presides over any discussion and to which a common consent is required in order that the significance of the discussion might be assured, be called *a rule of the first order.* And let any rule which is itself discussed, which figures as part of the matter of discussion, be called *a rule of the second order.* Then it will follow, that in any significant discussion, in any discussion which is capable of an objective resolution, a rule of the first order can never be the matter discussed.

This distinction is of the last consequence, for by reference to it one may decide, with respect to those disputes in which men's ultimate philosophic suasions are at stake, in what measure men significantly disagree, and in what measure they do but legislate. For, unless there be some rule of the first order which necessarily obliges all men, then any rule of the second order must be legislative.

When Descartes writes, and men read, the *Rules for the Direction of the Mind,* the rules in question, about which the argument is conducted, are rules of the second order. The rule of the first order, to which Descartes and his reader do commonly consent, consent to which is indispensable if the argument is to be significantly made or understood, is not the matter which is argued, but a condition of the argument, without which there could be no argument. When Hume writes, and men read, the *Enquiry Concerning Human Understanding,* the rule in question, about which the argument is conducted, is a rule of the second order. The rule of the first order, to which Hume and his reader do commonly consent, consent to which is indispensable if the argument is to be significantly made or understood, is not the matter which is argued, but a condition of the argument, without which there could be no argument.

Descartes writes in the *Rules for the Direction of the Mind:*

> By *intuition* I understand, not the fluctuating testimony of the senses . . ., but the conception which an unclouded and attentive mind gives us so readily and distinctly that we are wholly freed from doubt about that which we understand. . . . Intuition . . . springs from the light of reason alone. . . .
>
> . . . By *deduction* . . . we understand all necessary inference from other facts that are known with certainty. . . . Many things are known with certainty, though not by themselves evident, but only deduced from true and known principles by the continuous and uninterrupted action of a mind that has a clear vision of each step in the process.
>
> . . . The first principles themselves are given by intuition alone, while, on the contrary, the remote conclusions are furnished only by deduction.

These two methods are the most certain routes to knowledge, and the mind should admit no others.[5]

That is the radical pronouncement of the Rationalist philosophy, its statement of its program. The pronouncement, which bears to Empiricism the same relation, is enunciated by Hume. Hume writes in the *Enquiry:*

. . . Our thought . . . is really confined within very narrow limits. . . . All this creative power of the mind amounts to no more than the faculty of compounding, transposing, augmenting, or diminishing the materials afforded us by the senses and experience. . . .

Or, to express myself in philosophical language, all our ideas . . . are copies of our impressions. . . .

When we entertain, therefore, any suspicion that a philosophical term is employed without any meaning or idea (as is but too frequent), we need but enquire, *from what impression is that supposed idea derived?* And if it be impossible to assign any, this will serve to confirm our suspicion.[6]

Let now Hume read Descartes, and Descartes Hume, the question is, What is the significance of their division one from the other? That they are divided, divided concerning a fundamental rule of method which shall bear consequences, make differences, in a total tradition of philosophy, there can be no question: their division is one of the most radical divisions which philosophy is given to contemplate. If Hume rejects Descartes' rule, or Descartes Hume's, the rejection is not occasioned on either side by a failure of the one to understand the other. On the contrary, each understands the other but too well. By a sympathetic projection, by a provisional assent—by what in another connection has been described as "the willing suspension of disbelief"—each does that of which he is perfectly capable, adopts tentatively the rule of the other, divests himself of his own rule. The argument is heard, it is understood. Its compulsiveness may even be acknowledged as absolute. But its absoluteness rests upon a provision, and ceases in the moment the provision is suspended, as presently, in each case, it is. The rule which is in each case provisionally accepted, the acceptance of which enables Hume to understand the argument of Descartes, and Descartes the argument of Hume, is a rule of the first order, and for so long as this rule is commonly respected as obligatory on them both, they may significantly argue.

[5] *Philosophical Works of Descartes*, tr. by E. S. Haldane and G. R. T. Ross (Dover: New York, 1955), vol. I, pp. 7–8 ("Rule III").

[6] David Hume, *Enquiries Concerning Human Understanding and Concerning the Principles of Morals*, ed. by L. A. Selby-Bigge (Oxford University Press: Oxford, 1927), Section II, pp. 19–22.

But in the moment that this mutuality, which alone will enable argument to be significantly conducted, lapses, so that neither observes the condition of argument of the other, the condition which alone will permit argument to have an objective resolution, Descartes and Hume do no longer argue significantly at all. Each simply legislates, legislates fatefully indeed those rules, rules of the second order, which shall thenceforth bind him absolutely, and shall bind equally all men who consent to be bound by them. By what rule shall Faust gain knowledge, that he may command nature by obeying her? Upon so radical a question nature herself is silent. That is the tragedy of Faust. Impassive, indifferent, brute circumstance, nature issues no command, and Faust, who has sold his soul to possess her, discovers stricken that there is no obedience save as he shall require it of himself.

IV

I may therefore now speak—I would hope, without too seriously being misunderstood—of the morality of the scientific enterprise. By the morality of a science I understand nothing besides its adherence to a common method, that is, to a constitutive rule of evidence. The society of scientists is bound together by common commitment to a rule of evidence in precisely the same way that the citizens of a political community are bound together by common commitment to the principle of a legal order. The peculiarity of the society of scientists is that, unlike the nation-state, its members have no single geographic locus. It is an international community whose members never congregate. Surely the most tightly-knit, as it is the least centralized, community on earth, its executive and judicial functions are distributed universally among its members. The community is where they are, and they are dispersed wherever their rule is respected, without regard for the boundaries and moral separations which in other ways divide men and communities one from another. Yet, in spite of this circumstance, the scientific community no less than the political community observes the obligations of a *de iure* order. It is a community *sub lege, non sub homine,* and that is the indispensable condition of any moral community among men, whether in science or elsewhere.

That terrible question of Pontius Pilate, *What is truth?,* is rightly regarded as a sign not of his rational, but of his moral, inanition. The substance of Pilate's doubt, that there is no rule that supplies the condition of knowledge or of certitude, no rule of evidence which is not at once man's caprice, is not the civilized suspense of judgment which waits upon evidence: it is an annihila-

tion of the standard which permits evidence to be assembled. Men are nevertheless capable of that doubt, capable as Pilate was capable of it, capable as all men are in peril of it, who perceive the contingency, but do not allow the morality, of the scientific enterprise. That is why there is no more instructive affirmation in the history of philosophy, no affirmation more worthy of understanding, than old Tertullian's *Credo quia impossibile, Credo quia absurdum:* "I believe *because* it is impossible and absurd to believe."[7] The dictum presents, with a candor that is nowhere paralleled, one of the earliest confrontations of the medieval mind to a problem which presides prescriptively over its total career. The whole of medieval philosophy is an attempt to reconcile, and draw into mutual adjustment, the relative claims of Faith and Reason, of that knowledge of God which was afforded by revelation in the Scriptures and that knowledge which was afforded by prowess of human faculty in the exercise of reason. What men are indisposed to reject, they are compelled then to reconcile, and the problem of knowledge in medieval philosophy was nothing less than a sustained reflection on the competitive claims of its accredited sources of evidence. For medieval philosophy the competition was between Reason and Faith. Medieval philosophy equally affirmed the authority of each. The claims of Reason were accredited, the claims of Revelation were accredited, and so long as the one did but reinforce and complement the other, no problem of method could be felt. But what must occur, if for even once Reason should contravene Faith, or Faith Reason, or one part of revelation should be found in contradiction of another part? For Reason the juristic equilibrium of the whole economy of knowledge depended upon preserving the mutual consistency of beliefs. Of two beliefs which contradict each other, one must be false. To suspend this demand was to suspend Reason; to sustain this demand was to suspend Faith. The medieval attempt to preserve the juristic economy of knowledge is visibly exhibited in the anagogic interpretations of Scripture, in the distinction between the literal and spiritual meaning which was to be attached to it. The literal meaning was but the outer husk, which contained, as the shell its

[7] The phrase, *Credo quia absurdum*, which has by long tradition been employed to summarize the view of Tertullian, does not in fact occur in his writings. The passage which it abbreviates is as follows: "Natus est Dei Filius; non pudet, quia pudendum est. Et mortuus est Dei Filius; prorsus credibile est, quia ineptum est. Et sepultus, resurrexit; certum est, quia impossibile est." (*De Carne Christi*, cap. v, in *Patrologiae Latinae Cursus Completus*, ed. Garnier Fratres et J.-P. Migne Successores, Paris, 1878, vol. II, p. 806.)

kernel, the spiritual meaning within it. By this distinction, so it was urged, the integrity of the rational enterprise could be preserved, and those contradictions, which appeared vexatiously on its surface when the literal meaning was taken, were composed and pacified when the spiritual meaning was looked to, and the Scriptures were spiritually construed. In such a resolution Tertullian perceived only a postponement of the fundamental question of method, which argument cannot escape. It may be indeed that one does not assist the evidence of Faith by tampering with it. But even if it be tampered with, the question will still recur, not whether *de facto* Faith does compete with Reason, but, supposing such a competition to occur, what recourse *de iure* would remain? The answer is one of the most decisive acts of legislation in the history of human thought: if Reason and Faith do contradict each other, let Reason abdicate. That is not Pilate's answer: it is, on the contrary, precisely the moral affirmation of a rule. Philosophy of the later Middle Ages will qualify this rule; it will mitigate the harshness of its accent; suspend it, it cannot, and never does. When, eventually, the rule finds itself suspended, philosophy will have relinquished the mask which made it medieval. Then, valiant, it shall, as we say, wake itself from dogmatic slumber and see God, man, and nature with an eye grown innocent. We do mistake. It wears only a new mask, slumbers still, but slumbers perilously, since it no longer knows the mask it wears, or even that it wears one.

Is reason then too a mask, and sense-experience as well? For it would seem that here at least, with respect to the conditions of all that modern man does ever profess to know, there exists a common ground of belief, which is independent of any human enactment, of any act of human legislation—a ground which binds men because men have no choice save to be bound by it, or not to know at all. This indeed is the option, either to know or not to know at all; but the same option confronted equally Tertullian, and confronts all men, whatever the method may be which is in question. The question is always, for *any* decision of method, whether to know or not to know at all, since apart from a method, a rule of evidence, there can be no knowledge. For Tertullian the *sic et non* was either Faith or no knowledge; for Descartes it was either reason or no knowledge; for Hume it was either sense-experience or no knowledge; for the modern sciences of nature it is either reason and sense-experience taken jointly or no knowledge. That option is not peculiar to the use of one method as against another. It will not therefore serve to establish, for any one method, a pre-

rogative claim upon men's minds. The difficulty is, that philosophy has always put the question concerning the status of its rule of evidence, when it has discerned the necessity of putting the question at all, ambiguously. For the question is not properly whether the relations disclosed in logical analysis or in sense-experience are a mask. They are not. What is disclosed in sense-experience or in logical analysis man does not arbitrate. He arbitrates only the relevance of the disclosure, its role as evidence, and its relation to proof; and of this demand, as he would gain knowledge from the disclosure, he cannot be absolved.

V

It is man, not nature, who decides what are the juristic conditions under which nature can be known. By the *method of a science of nature* I understand something more fundamental than the special rules which are implicit in its techniques of discovery. Its fundamental method is, on the contrary, its constitutive rule of evidence, the decision which places ultimate authority, in determining the truth of beliefs about nature, in experience. That rule is indispensably required before the task of discovery can be undertaken, since it supplies the condition under which any discovery could be acknowledged. A hypothesis can be verified, rules of technique governing the inductive procedure can be elaborated, for the reason that the conditions of verification are presumed already to be understood. What constitutes an inductive proof— the rule which enables inquiry to proceed— this is not the topic of induction, but its condition, without which there could be no induction, nor any special rules of technique, whether those of J. S. Mill or those of another. Yet now, if one asks what is the status of this rule, which accredits experience as the source of evidence for the truth of beliefs about nature, the contingency of the rule is at once declared. Experience affords evidence because that is what men have chosen to mean by proof. The important consideration is not whether all men have concurred (as in fact they have not) in meaning this, but, supposing this concurrence, what constitutes the *obligation* that the rule imposes? It is simply this, that men consent to be bound by it. Their consent to it, not their agreement with each other, confers upon it such obligatoriness as it has. Their agreement with each other is a consequence of their common commitment to the rule, not the reason or justification for their commitment; and if fewer than all consented, these still who consented would be bound by the rule as indefeasibly as, if none

consented to it, it would oblige no man. "For we walk by faith, not by sight."[8] Sense-experience is not an impregnable obligation: it stipulates no obligation whatever; it is we who oblige ourselves. But a man shall die if he does not comply with it? That, I suppose, is true, but it is now you who regard the rule as moral, who make a moral justification of it, and, in my judgment, a poor one and a wrong one.

If, then, in its own part, sense-experience supplies no impregnable obligation, what shall be said of the relations discovered in logical analysis? Let it be asked, What constitutes a deductive proof? A proposition is said to be proved if it can be shown to be analytically involved in premises whose truth is assumed. Where such an implicative relation exists, the proof consists simply in exhibiting the proposition as a consequence of these premises: it is simply explicative of them, an unfolding of their meaning, and has therefore exactly the measure of truth which they have, so that to deny it is to deny them also. To deny it without denying them is to derange the total economy of one's beliefs, since the existence of that economy radically depends on preserving a consistency among the beliefs which compose it. If it is true that, while temperature remains constant, the pressure of a gas varies inversely as the volume, and oxygen is a gas, then necessarily the pressure of oxygen must, under a constant temperature, vary inversely as the volume. Suppose the consequence to be false, then at least one of the premises must be false: either it is false that oxygen is a gas, or it is false that under a constant temperature the pressure of a gas varies inversely as the volume. The proof is found to hold, the inference is valid, because unless it were so, the consistency which is the indispensable condition of knowledge would be aborted. The condition of proof is thus determined by a normative demand, by a demand for self-consistency, which is the juristic equilibrium of the logical domain.

Propositions sustain to each other logical relationships which do not depend on anyone's thinking them. The relationships remain even if they figure in no one's thought. That is why one speaks of a "discovery" in mathematics: the type of order, which is discovered, is not *made* by the discovery, it is *found*. Reality is not constituted by the circumstance that it is known. No method will of itself provide the truth which it defines: it has to do not with the structure of reality, but only with the attitude which we adopt in addressing ourselves to reality; it affords a law not for what is known, but only for ourselves knowing. If therefore the

[8] *II Corinthians*, 5:7.

logical relationships of propositions comprise an objective order of relations which the science of logic investigates, what can be the significance of speaking of a "decision of method" which is presupposed by that science? Would not the relations remain as they ever were, even if the decision had never been made? There can be no doubt of it. Yet, nevertheless, though the relations would remain ever as they were, there could be no science of those relations without that act of decision. For what is inessential to the type of order investigated is nevertheless quite indispensable to the science which investigates it. An inference is valid not by virtue of the circumstance that it is made, but by virtue of the circumstance that it is made on proper grounds. It is the business of logical analysis to discriminate these grounds by determining the formal relationships which are capable of sustaining a valid inference. Yet, since all inference whatever, whether it be valid or invalid, is found upon analysis to rest upon some formal structure, a rule is needed which permits analysis to decide which among these structures are the ones required. The rule which enables analysis to make this distinction cannot therefore appear as a result of the distinction.

The science of logic needs a rule which will enable it to distinguish, among the relations which it isolates by analysis, those which are relevant to proof from those which are not. For it is not analysis, but the rule of relevance which governs analysis, which stipulates the requirements of the logical domain. It is as true of two independent propositions, that neither is derivable from the other, as of two propositions related by implication, that one may be deduced from the other. Each of these relations—the relation of independence no less than the relation of implication—is for analysis as real, and as objective, as the other. Why, when a proof is required, does one search out the relation of implication? Because, by reference to this relation, it is possible to exhibit the analytic involvement of a consequent in its logical antecedents. That is, for logical inquiry, the meaning of proof, by definition the kind of evidence it is prepared to accept. Of this there can be no question, but that is to obscure the normative circumstance of logic. Implication is not relevant to proof because one defines proof in terms of it; one defines proof in terms of it because its relevance is already tacitly conceded. Its relevance is assured by the constitutive rule which presides over the logical domain, that no proposition, the affirmation of which will violate the logical economy, shall be admitted into it. The fundamental demand of that domain is the juristic demand for consistency, for the mutual

compatibility of its elements, and this can be in no way exhibited except by reference to the relation of implication, which is therefore the condition of all proof.

That demand is necessary? Shall one find in it an impregnable obligation? One shall not. That we do mutually consent to it is as contingent a circumstance as that we do breathe a common air; and just as, if I would live, so I must breathe, so also, if I would reason, I must observe the condition of rational discourse. But it is not life which impels me to affirm life as a value, nor is it reason which impels me to affirm reason as one. The demand for logical consistency is not itself a logical demand. It is a moral demand. If, in describing it as moral, I broaden the meaning of morality beyond what philosophy has been accustomed to regard as its purview, it is not logic, but only a philosophical impoverishment, which is diminished. *Illum oportet crescere, me diminui.* The moral task of man belongs to him because he is the wearer of masks. There would be no moral task if he wore none. But for that reason there is no mask which he wears which philosophy can presume to exclude. Morality is the rule which must at last govern the making of rules, that these rules should themselves form an economy.

VI

The question concerning the morality of science has nothing whatever to do with the application of science. The morality of its applications is another matter, and belongs to another context, in which man is considered not merely in his special capacity as scientist, but in his capacity simply as man, not merely as the wearer, but as the maker, of masks. But the question concerning the morality of science would still be asked even if science had no applications. It concerns the possibility of science, namely, the rule which is necessary in order that there should be any science. The order of precedence is exactly the opposite of the order which philosophy has been accustomed to draw. Morality has been suspect because it has been thought necessary, in order to sustain its claim upon belief and conduct, to demonstrate its truth. But truth itself is, on the contrary, rooted ultimately in it, and indivorcible from it. The ultimate question of philosophy is not Pilate's query, *What is truth?*, but Jesus' query, which Pilate silenced, *What is eligible for human choice?*

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THE ANALYTIC *A POSTERIORI* AND THE FOUNDATIONS OF METAPHYSICS

METAPHYSICS in its classic sense has always been understood to be the rational investigation of the eternal order. Central to that investigation is the distinction between that which is eternal and that which is perishable, and though metaphysics addresses itself to both of those grades of being, its primary concern lies with the eternal, so that if there is nothing eternal, or if nothing eternal can be known, then metaphysics is an impossibility. The distinction between the eternal and the perishable may be said to be a cosmological one, in that the concept of time is cardinal to it. That distinction may be translated into what might be styled ontological terms, as a distinction between the necessary and the contingent. What is eternal must also be necessary, and in this sense metaphysics is the science of being *qua* being, or of being as such, or of being insofar as it is necessary. If there is nothing which is necessary, or if nothing necessary can be known, then metaphysics is impossible. Hume and Kant, in their critique of intelligible necessity as such, attacked metaphysics at its very foundations. The renewal of metaphysics requires first and foremost a reconstruction of those foundations.

The distinction between the necessary and the contingent may be translated further into a distinction between the analytic and the synthetic, this last being a logical, rather than an ontological or cosmological, distinction. All necessary truths, provided they are knowable as necessary, must be capable of expression as analytic propositions. Metaphysics, then, in this sense, is seen to be the science of the analytic. If all analytic truths are merely vacuous or trifling, true solely by the fiat of nominal definition, then once again metaphysics is impossible. Our modern epigoni of Hume are perfectly justified when they insist that metaphysics stands or falls according to whether or not analytic propositions must needs be merely formal and vacuous. It is our present object to show that there are in fact analytic truths which are derived from a precise examination of experience, that these truths must be understood as *a posteriori* rather than as *a priori*, and that they are material, rather than merely formal, in their content. In establishing the analytic *a posteriori*, we seek to provide a kind of organon propaedeutic to metaphysics itself. Designed as prolegomenal to metaphysics, such an organon is concerned solely with the logical structure of metaphysical propositions. It is not concerned with metaphysical propositions as metaphysical, except perhaps incidentally.

That all propositions are either empirical and synthetic, or formal and analytic, might well appear to be the case. Thus if the proposition "all material objects have weight" be construed as analytic, the very definition of a material object includes weight as one of the nominal predicates, and, though the propostion is then true enough, it proves merely vacuous and tautological. But if the proposition be construed as synthetic, then already a material object is allowed to be possible without weight. Universal synthetic propositions are thus incapable of being verified, and analytic propositions would appear to be true solely by verbal stipulation. How, then, can there be a proposition at once empirical, universal, and necessary? The logical question preliminary to metaphysics is not, as Kant believed, how is the synthetic *a priori* possible? Rather, the question must be couched in obverse fashion: how is the analytic *a posteriori* possible?

Our investigation may be conducted most trenchantly through the painstaking, and even tedious, analysis of sound and color. Empirical, in that it is ordered toward the understanding of actual existing entities, our inquiry seeks to establish the conditions of ascent from the particular case to the universal law. The problem of induction is to be examined in a peculiarly radical form, sound and color being employed by us as simple fields of study from which we propose to devise paradigms or exemplars exhibiting the structure, if not the content, of metaphysical propositions. To begin, let us strike middle-C on the piano keyboard, and then let us produce that same middle-C on the violin. The two sounds share the property of middle-C-ness in common: both have the same pitch. They differ, however, in their timbre. Timbre is defined as that quality of tone which distinguishes voices or instruments. All the sounds produced by the same piano have the same timbre. Let us now strike middle-C once again on the piano, though this time we shall strike the key much harder than before. The sound produced in this case possesses both the same pitch and the same timbre as our original sound. It differs from it, however, in its loudness. Given any instance of middle-C, one may distinguish in it at least three properties or attributes, namely, its pitch, its timbre, and its loudness. Let us now produce, successively, all the C's on the piano. We might designate each by means of a numeral subscript appended to the letter-name, as C_1, C_2, C_3, etc. All of these sounds share the generic trait of C-ness in common, and each differs from the others through its specific differentia. Thus there is the property through which middle-C is middle-*C* and also the property through which middle-C is *middle*-C. We are now prepared to distinguish at least five attributes of

any instance of middle-C: its pitch, its timbre, its loudness, its C-ness, and that specific difference by which mere C-ness is converted into middle-C-ness. These last two attributes are seen to comprise jointly the pitch of the sound. Any single instance of middle-C is what Hume regarded as a simple impression of sense, though we have found it to be far more complex than Hume was willing to admit. By juxtaposing, comparing, and contrasting such simple sounds, one is led to distinguish in each certain analytic "parts." Musicologists and psychologists have assembled a copious mass of material relevant to a phenomenology of sound, of which we have indicated but the barest rudiments.

The phenomenology of sound, as we envisage it, constitutes a science in the precise sense, at once empirical and analytic, *a posteriori* and necessary. Let us inspect the universal proposition "all instances of middle-C have loudness," or even "all sounds have loudness." Neither is an identical proposition: subject and predicate cannot be said to be one and the same. Moreover, both propositions are the definite result of empirical observation. A man congenitally deaf could not possibly grasp their meaning. Finally, they are inherently analytic. It is of the very inner essence of middle-C-ness that it entail loudness: the former is inconceivable apart from the latter. In distinguishing the analytic attributes of middle-C-ness, as pitch, timbre, and loudness, we are not concerned with the definition of the mere word "middle-C-ness" but rather with the constitution or essence of the actual entity itself. One must not confound real with nominal definitions. In construing as analytic the proposition "all material objects have weight," we are involved simply in a nominal definition. How do we know this? Because we can subtract the predicate "weight" from the subject "material object" so as to leave a residue, say "body." The proposition "all bodies have weight" is seen to be manifestly synthetic. Our original proposition asserted no more than that any body which has weight, has weight. It might be objected that the proposition "all instances of middle-C have loudness" is purely nominal in the same way. Have we not defined middle-C as, briefly, a certain pitch plus loudness? So be it. Let us then subtract the predicate "loudness" from the subject "middle-C" so as to leave a residue. What is this residue? Clearly that certain pitch which constitutes middle-C. But what do we find in this case? Any instance of that pitch itself entails loudness. In general, whenever the predicate of a non-identical analytic proposition cannot be subtracted from the subject so as to leave a residue, or if, in some sense, it can be subtracted (as loudness from middle-C-ness) but the residue itself entails that predi-

cate, then we are confronted with a real, and not a nominal, analytic proposition. By means of this method of subtraction, we are equipped with a touchstone or canon by which to certify the analytic *a posteriori*.

At this juncture we are reminded of two treatises included in Aristotle's *Organon*, the *Prior Analytics*, devoted to the formal principles of the syllogism, and the *Posterior Analytics*, which seeks to show how the primary premises required for demonstrative reasoning can be known. It is tempting to suggest that our investigation of the analytic *a posteriori* might be styled a kind of posterior analytics. That posterior analytics should be the science, or at least the organon, of the analytic *a posteriori* is singularly felicitous. As Aristotle's *Prior Analytics* is concerned with the nature of deduction, so his *Posterior Analytics* is concerned with the nature of induction, or how a necessary connection may be known to bind together subject and predicate in a universal proposition derived from experience, or how a general law may be derived from particular instances; which is as much as to ask how universal analytic *a posteriori* truths can be known. For insofar as general laws can be seen to be necessary, they must be analytic, and insofar as they are grounded on experience, they must be *a posteriori*. What appeared earlier as the phenomenology of sound now proves to be the posterior analytic of sound in the exact sense.

The posterior analytic of color affords us an equally instructive science which is at once empirical and apodeictic. Neither the massiveness nor the procedures of that science can be conveyed to the reader, who may be unfamiliar with them, apart from a density of illustrative evidence brought home to him in some detail.[1] As one considers that evidence, he will find it profitable to recall to mind Hume's problem of the missing shade of blue. Let us begin by juxtaposing a red circle and a green circle. Both are seen to share an attribute in common: each is circular, and circular in the same precise unequivocal fashion. The red circle and the green circle are also seen to differ: they differ in color. Confining our attention now to the red circle alone, we are empowered to distinguish two of its component attributes, its circularity and its redness. If we now juxtapose our red circle with a larger red circle, we find that, though they share the attributes of redness and circularity, they differ in their size. Three component factors are thus distinguishable in our original red circle: its redness, its circularity, and its size, or its color, its figure, and its magnitude.

[1] *The Science of Color*, by the Committee on Colorimetry, Optical Society of America (New York: Thomas Y. Crowell Company, 1953).

Figure and magnitude are extensive properties of color. Two instances of the same color may agree in figure and differ in magnitude or agree in magnitude and differ in figure. In addition to the extensive, there are also the intensive properties of color. All colors are divisible into two classes: the chromatic colors, as red and blue, and the achromatic colors ranging from pure white through the series of grays intermediate between white and black, down to solid black itself. Brightness is the attribute that measures the variation among the grays. Dark grays have low, median grays medium, and light grays high, brightness. Pure white has maximum, and solid black minimum, brightness. Brightness is sometimes referred to as luminosity, value, or brilliance, value being the term current among artists. Chromatic, as well as achromatic, colors differ from one another in brightness. Let us assemble some dozen specimens of different grays, and having ordered them in a vertical series from high to low brightness, let us now compile a dozen specimens of different reds, and holding one of the red specimens, let us attempt to match it with one of the grays. Running up and down the series of grays, we find that the red specimen approximates in brightness one of the grays more than the others. Placing our red specimen adjacent to its corresponding gray, we are now to match all the other reds in like manner. The result will be a vertical series of reds ranging from relatively high to relatively low brightness. Given an exhaustive compilation of reds, one can exhibit a series of reds arrayed in exact one-to-one correspondence of brightness to an exhaustive series of grays. Differing in brightness, all of these reds share the same hue in common. Hue is the "colorful" or "colored" part of color. It is that attribute in respect to which colors may be described as red, yellow, green, or blue, or as intermediate between two of these, as red-yellow denotes a hue equally resembling red and yellow. More than one hundred different hues have been detected in the spectrum, but only red, yellow, green, and blue contain no suggestion of another hue. These four may then be considered primary colors, and, phenomenologically, white and black should be added to them.

In addition to hue and brightness, all chromatic colors possess the attribute of saturation. Variously styled as purity, per cent white, intensity, and chroma, saturation is that attribute in respect to which colors may be differentiated as being higher or lower in degree of vividness of hue; that is, as differing from gray. If we assemble a dozen different specimens of red all of the same brightness, we may array them in a horizontal series ranging from the specimen on the extreme left, which is placed adjacent to its cor-

responding gray in the brightness scale, to the specimen on the extreme right, which differs most, in its sheer redness, from the initial gray. Saturation is that attribute in respect to which one specimen of red may be said to be more red or more purely red than another. Just as a red and a blue may have the same brightness, so, too, a red and a blue may have equal saturation or purity. By means of systematic cross-reference, one may define all the chromatic colors in terms of at least three intensive factors or attributes, namely, hue, brightness, and saturation. Thus lavender is bluish blue-red in hue, of low saturation, and medium brightness. Lemon yellow is reddish yellow in hue, of high saturation, and very high brightness. Plum is blue-red in hue, of low saturation, and very low brightness. Pistachio green is yellow-green in hue, of low saturation, and high brightness. A trained eye should be able to "factor" any color upon simple inspection. Connoisseurs of Chinese porcelain are said to be so expert as to be able to identify, by sight alone, as many as three hundred different blues.

The posterior analytic of color enables us at one blow to solve Hume's problem of the missing shade, which he mistakenly regarded as "so particular and singular that it is scarce worth our observing." Actually, it is of profound moment, and we shall find that Hume's failure to understand it sprang from a deep defect in his philosophy. In the first chapter of his *Treatise,* Hume bids us consider a man conversant with all the different shades of blue save only one, which he has never encountered. "Let all the different shades of that color, except that single one, be placed before him, descending gradually from the deepest to the lightest; it is plain that he will perceive a blank where that shade is wanting, and will be sensible that there is a greater distance in that place, betwixt the contiguous colors, than in any other." This is certainly true if the leap is made sufficiently abrupt, which can be assured by positing that the man is unacquainted not merely with one, but with four or five contiguous shades of blue, and is presented with a series from which those shades have been deleted. For Hume the whole experiment is puzzling in that, persuaded of the capacity of the man to summon up a pictorial "idea" of the missing shade, Hume must allow an exception to his general rule that all simple ideas are copies of simple impressions. For us the capacity or incapacity of a man to summon up such an "idea" is quite without interest. It is enough that he can recognize a gap in the series. For it is that gap which of itself provides proof that there is in fact a missing shade, whether or not it can be pictured in the imagination. How do we know of this missing shade? By experience? Certainly. One must here dis-

tinguish a "weak" from a "strong" empiricism. Aristotle is a "weak," and Hume a "strong," empiricist. The one insists merely that all knowledge takes its rise from experience, while the other requires of knowledge a peculiarly slavish conformity to it. We would not be able to interpolate (imaginatively) the missing shade if we were radically devoid of all experience of blue in any form. That is obvious. How, then, can we derive one shade of blue from the others? Because they are not absolutely simple. The shades of blue in Hume's series all share the same hue in common. They differ only in brightness (and perhaps also in saturation), ranging from "the deepest to the lightest." Hue, then, is the constant, and brightness the variable, factor in the series. Hume himself admits that, though colors are "really different from each other," they are "at the same time resembling." But what is this resemblance? It is the sharing of attributes in common. Hume confuses the order of substance with the order of intelligibility. Simple sensations are simple only in the order of substance; that is, their analytic parts or modes cannot exist independently in and through themselves. Pitch and loudness, hue and brightness—none of these can exist substantially by itself alone, but they exist nonetheless, as modes of substances, as attributes of sounds and colors. Far from being "scarce worth our observing," the case of the missing shade is actually an object-lesson in, or paradigm of, conceptual thought, understood in terms of a "weak" empiricism. It is the rule rather than the exception.

Hume failed to understand his missing shade because of his insistence on the absolute simplicity of simple impressions. That insistence may be traced to his fundamental doctrine that "whatever is distinguishable, is different, and whatever is different is separable." Hue cannot be separated from brightness, nor pitch from loudness; therefore hue cannot be really different from brightness, nor pitch different from loudness. Furthermore, hue cannot even be distinguished from brightness, nor pitch distinguished from loudness. From this doctrine it follows that if subject and predicate in a universal proposition are in any way different or distinguishable from one another, they must also be separable; which is equivalent to saying that all non-identical propositions must be synthetic, or if analytic, only nominally so. Hume states his position very clearly on this matter:

> when a globe of white marble is presented, we receive only the impression of a white color disposed in a certain form, nor are we able to separate and distinguish the color from the form. But observing afterwards a globe of black marble and a cube of white, and comparing them with our former object, we find two separate resemblances in what formerly seemed, and really is, perfectly

inseparable. After a little more practice of this kind, we begin to distinguish the figure from the color by a *distinction of reason*. . . . If the figure be different from the [color], their ideas must be separable as well as distinguishable. What then is meant by a distinction of reason, since it implies neither a difference nor a separation? [2]

Hume's answer to the question is that these resemblances and distinctions of reason are merely "abstract ideas" which really and truly cannot be said to exist at all, even in the mind. The analytic *a posteriori* is founded on a principle expressly opposed to that of Hume, namely, that there are distinctions of reason which disclose empirical elements in reality which are distinguishable, and even different, from one another, though they are inherently incapable of being separated. The denial of that principle by Hume is seen to result in the crippling awkwardness with which he deals with his missing shade. It is quite true that we would not be able to distinguish color from figure if all that we ever witnessed were confined to a single globe of black marble. How, then, asks Hume, can the introduction of an entirely different matter of fact (the cube of white marble) provide us with any real knowledge of the constitution of the black globe? Or, which is the same thing, how can one learn anything of one shade of blue from other shades? The fact of resemblance serves as the perceptual ground by which reason is empowered to distinguish the attributes embedded in one entity through reference to other, diverse entities.[3]

Hume's doctrine may be derived, in the last analysis, from John Locke, who expressed himself on the subject with a consummate vigor that exacts from us a certain awe even while it elicits a fierce dissent. Locke does not shrink from denying that colors have anything in common with one another except their name. The whole passage merits our closest attention:

the lowest species being but one simple idea, nothing can be left out of it, that so, the difference being taken away, it may agree with some other thing in one idea common to them both; which, having one name, is the genus of the other two: v.g., there is nothing can be left out of the idea of white and red to make them agree in one common appearance, and so have one general name; as rationality being left out of the complex idea of man makes it agree with brute, in the more general name and idea of "animal". And, therefore, when to avoid unpleasant enumerations men would comprehend both white and red, and several other such simple ideas, under one general name; they have been fain to do it by a word which denotes only the way they get into the mind. For when white, red and yellow are all comprehended under the

[2] *Treatise*, Bk. I, Part I, § 7.

[3] Cf. L. Wittgenstein, *Foundations of Mathematics*, Oxford, 1956, I, 104, 105; V, 48.

genus or name "color", it signifies no more but such ideas as are produced in the mind only by the sight, and have entrance only through the eyes.[4]

Is this intelligible, that colors do not comprise a real genus exhibiting a certain common appearance whereby colors are distinguishable *en masse* from all sounds? Given a specimen of red and a specimen of yellow, the posterior analytic of color assures us that one may compare and contrast them in respect to at least five generic factors, figure, magnitude, hue, brightness, and saturation. In designating the two specimens as red and yellow, we are referring directly only to one attribute, namely, hue. The words "red" and "yellow" are not the names of "simple ideas" or "simple impressions" or simple sensations at all; any more than the word "middle-C" is the name of a simple aural impression. The simple sound itself must be described or *defined* in terms of a definite loudness and timbre as well as a definite pitch; just as the simple color "emerald" must be defined (waiving the extensive attributes) as yellow-green in hue, of medium saturation, and medium brightness. It has long been fashionable to assume that simple sensations are indefinable. This is quite false. Turqoise blue, ruby, peach, aquamarine—these are all names of simple sensations of color, and they are all eminently definable. Turquoise blue is defined as greenish green-blue in hue, of medium saturation, and high brightness; ruby is defined as red in hue, of high saturation and low brightness; peach is defined as reddish red-yellow in hue, of low saturation, and very high brightness; and aquamarine is defined as green-blue in hue, of low saturation, and medium brightness. It is a grave error to look for the indefinables in the names of simple sensations. Rather, they are to be sought deep in the analytic parts of those sensations. Simple sensations are simple in one sense, composite in another. If, now, we confine our inspection solely to the hue "red" and the hue "yellow" (each being itself only a mode of simple impressions of color), can we not even here detect a common appearance whereby they are alike, as opposed to all instances of sound or of pitch? How shall we name this common appearance? The hue "red" and the hue "yellow" share the attribute of hueness in common. We might speak of a "red hue" in the same way that we speak of a "canine animal," hue being the genus in the one, as animal is the genus in the other, and red being the specific difference, as canine is the specific difference. Just as no such thing as a bare animal can exist, unspecified as to its being canine, feline, or some other; so, too, a bare hue, which is not some definite hue, cannot exist. Like Hume

[4] *Essay*, Bk. 3, ch. 4, § 16.

after him, Locke confuses the order of substance with the order of intelligibility and even with the order of being as such. Simple impressions of sense are simple substances, but they are not the simplest of beings absolutely. The attributes of a simple sound cannot be dismissed as merely nothing at all. They exist in their own derivative way, as modes. At bottom, there is a certain indeterminacy (or synthetic quality) in simple impressions, as well as a definite determinacy (or analytic quality.) In producing a single instance of middle-C on the piano, one notes that, though the pitch entails at least some loudness and some timbre by an analytic necessity, nevertheless the particular degree of loudness and the particular type of timbre in the sound are annexed to the pitch by a synthetic relation. We may say that the particular degree of loudness is "accidental," while loudness as such, in some degree, is essential, to the pitch.

The sciences of color and sound oblige us to return to a doctrine of real essences. It will be recalled that Locke denied that the real, as opposed to the nominal, essence of any substance can be known. Though we are acquainted with gold as a subtance yellow, hard, heavy, malleable, ductile, and soluble in *aqua regia*, these constitute a mere synthetic aggregate of properties annexed to one another without any necessary connection binding them together in a substantial unity; or, if such a connection does exist, it seems incorrigibly concealed from us. The real essence of gold is thus unknown, and after Locke it came to be doubted if there were any real essences at all, known or unknown. The posterior analytic of sensations requires of us the reinstatement of a doctrine of substance, fortified by a doctrine of real essences, real definitions, and necessary connections. One must not confound the status of the metal gold with that of the color red. The metal possesses the properties of yellowness, hardness, heaviness, malleability, and ductility, as the color possesses the properties of hue, brightness, saturation, figure, and magnitude. But these latter properties, unlike the former, do exist in a substantial unity, an intelligible necessary connection binding them all together. It is that necessary connection which provides the metaphysical ground for the logical concept of the analytic *a posteriori*. Let us consider the proposition "all colors have magnitude." This might seem to be a mere tautology in that color could be defined, in brief, as hue plus magnitude. To assert that that which has hue and magnitude has magnitude, is a very miserable kind of knowledge. Let us, then, subtract the attribute of magnitude from the subject "color" of the proposition. We then have the new proposition "all hues have magnitude." Is this also a mere

tautology? Let us again subtract the predicate "magnitude" from the subject, in this case "hue." Can we do this? Let us define hue as some factor K plus magnitude. Can we now say that the proposition "all K's have magnitude" is synthetic? The point to be emphasized is that, though the terms hue and magnitude are not identical by any means, the former entails the latter in such a way that the latter cannot be substracted from the former so as to yield a residue, and even if such a subtraction could be performed, the residue resulting from the subtraction of magnitude from hue would itself entail magnitude.

We have thus at hand a touchstone or canon by which to distinguish a mere nominal analytic proposition, which is true solely by fiat and verbal stipulation, from an analytic *a posteriori* proposition, which is at once empirical, universal, and necessary. Given an analytic proposition, ask first the question, is the predicate identical with the subject? If so, the proposition is a mere tautology. If not, ask the question, can the predicate be subtracted from the subject so as to yield a residue, as the predicate "wicked" of the analytic proposition "all ogres are wicked" can be subtracted from the subject "ogre" to yield the residue "giant." If that subtraction cannot be performed, then the proposition is analytic *a posteriori.* If the subtraction can be effected, so that a new proposition consisting of the residue as subject (in this case, giant) and the original predicate (wicked) constitutes a synthetic proposition (all giants are wicked), then the original proposition was purely nominal. If, however, the new proposition is also analytic, then the original proposition, like the new one, is verified as analytic *a posteriori.*

In launching the analytic *a posteriori,* our initial intention was to eschew all metaphysical commitments, so as to establish our organon on purely logical and epistemological foundations. Not surprisingly, this design has proved inadequate. The foundations of metaphysics must themselves be metaphysical. In adumbrating two special sciences—chromatics or the posterior analytic of color and sonics or the posterior analytic of sound—we hope to have shown that there is a *tertium quid* between the formal sciences, such as logic and arithmetic, on the one hand, and the positive sciences, such as chemistry and astronomy, on the other. Chromatics and sonics exhibit intelligible necessity, in common with the formal sciences; and, in common with the positive sciences, they are manifestly empirical. Such a science is metaphysics. Metaphysics is the posterior analytic of reality. Its object is to supply a posterior analytic of time and space, of motion and rest, of essence and existence, of being and non-being; and, through the

noetic investigation of these themes, it aspires to grasp, in some small measure, the invariants that preside over, and constitute, the eternal order.

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CAUSATION, WILL, AND CREATIVITY

A CRITICAL examination of the so-called determinist and indeterminist positions with respect to free will and moral responsibility indicates, I am convinced, that the controversy has long been so involved in logical and linguistic confusion as to reduce to absurdity as well as futility much of the debate on the subject. For the fact is, I believe, that an analysis of their respective positions would reveal most modern determinists and libertarians as being in fundamental agreement on most of the real issues involved. Both agree that there is a significant area, however small, of free will in human action, and therefore of moral responsibility. Both admit the operation of the laws of cause and effect in the determination of human motives, choices, and acts. Where, then, lies the basic point of conflict between the two positions? Presumably on the issue of "free" versus "determined" choices. Scientific determinism holds that all choices and all acts of will, without exception, are "determined" in the sense that they must fall within the pattern of a naturalistic and inescapable cause-and-effect relationship.[1] Libertarianism traditionally insists that although the overwhelming proportion of such choices and acts are so determined, there remains a small but all-important area of will and action which is completely free, i.e., not mechanistically "determined."

Clearly, then, the areas of agreement in the two positions are substantial. Both agree on the operation of the cause-and-effect principle not only in physical events but also in a large field of human behavior. The principle of causation, which is not to be

[1] In applying the mechanistic principle to human character and human conduct, the determinist is under the necessity, as Nowell-Smith observes, "of drawing a precise analogy between human motivation and mechanical forces." But, as Nowell-Smith further points out, "there is no empirical justification for drawing the analogy between mechanical or para-mechanical forces and human choices except in the most trivial respects. . . . A story about motives, desires and character is not a story about particles; nor is it altogether *like* one." (P. H. Nowell-Smith, "Determinists and Libertarians," *Mind*, Vol. LXIII (July, 1954), pp. 334–335.)

confused with fatalism, is thus accepted by both schools.[2] So also is the principle of the freedom of the will. To most scientific determinists as much as to libertarians the human will is genuinely free. To the former it is genuinely and meaningfully free because all choices and acts are determined by natural forces which can increasingly be controlled and directed. To the latter, the will can be truly and meaningfully free only if some portion of human choice and action can operate independently of natural causative factors. The sum and substance of the issue, then, is the insistence, on the one hand, that nothing can occur without a causative agent, and the equally urgent insistence, on the other hand, that some aspects of human choice and will do not necessarily entail any natural or physical causative agent but derive their origin from some unknown source or might be given other than physical or natural explanations.

One primary fact should be stressed at this point, namely, the essentially and necessarily rationalistic nature of the two main contentions regarding the inviolability and all-inclusiveness of the causative principle on the one hand, and the limitations of this principle on the other. There is, of course, no empirical proof either way. Hume's famous distinction between efficient cause and the resemblance, succession, contiguity, and repetition of events on the one hand, and the true meaning and nature of causation, on the other hand, remains completely valid. His contention (supported and extended by Schlick) that from an empirical standpoint we know nothing about the essential nature of efficient causes, much less about first or final causes, has, I submit, never been successfully refuted. The determinist *assumes* the universality and inviolability of the so-called laws of cause and effect. He admits not only that he does not know all or even the larger proportion of the causes, but also that they can never be known. But he clings to the hypothesis, *a priori*, in the last analysis, that the causative principle in some form *must* operate everywhere and at all times and without exception.[3]

The traditional libertarian position rests upon premises equally

[2] In the same article Nowell-Smith comments on fatalist forms of determinism as follows: "I shall forbear to comment on their brand of determinism, since I doubt whether anyone is now seriously deceived by it." (*Ibid.*, p. 331.)

[3] Nowell-Smith further states: ". . . the fact is that 'determined' and 'contra-causal' have not been analyzed and until their meanings are made clear, until we know to what we are committed when we say that choice is or is not contra-causal, the disputants must be fighting in the dark. There are at least three different bogeys that go under the name of determinism and they must be kept distinct because each requires a different technique of exorcism." (*Ibid.*, pp. 330–331.)

hypothetical. In insisting that some aspect of choice and will is completely "free," i.e., independent of external determining factors, he is necessarily leaving the source and origin of the "free" acts of will empirically unexplained. He may indeed, like Kant, give rational and metaphysical explanations for the derivation and the origin of the human will; but, however much he may attempt to support his hypothesis with empirical data and evidence, the fact remains that his conclusions about causation or the absence of it still remain wholly speculative.

It would seem, then, that both schools of thought are making statements and claims about causation in relation to human choices and actions which on the basis of scientific or empirical knowledge cannot be substantiated. On this point we are well reminded of Whitehead's repeated insistence upon the depth and degree of our present ignorance about scientific laws.[4] We simply do not have knowledge enough to warrant any positive, sweeping, or final conclusions about causation and the human will. This applies to the determinist and libertarian positions alike. One is as speculative if not as mythological as the other (though the scientific determinist tends to believe that all the abstract speculation belongs to the other camp). One suspects, then, that the dispute on the issue along the lines which it has traditionally pursued is an idle one which can lead to no fruitful results.

Before turning specifically to a more constructive approach to the whole problem, we should consider one further aspect of the issue of free will, namely, the element of chance—which is to say the introduction of unplanned, unintended, and unpredicted factors into experience. The stubborn reality of chance factors in all natural phenomena including those of human experience has always been a major source of difficulty to both the determinists and the libertarians. It is preferable, from either point of view, to minimize its importance and influence. Hobbes, for instance, in his stress upon the laws of necessity and the unfailing operation of the principle of efficient cause and effect is constrained theoretically to deny the existence of chance. Therefore, if chance is narrowly defined as the introduction or occurrence of events which have no causal precedents, simple, or what I prefer to call "strict," determinism cannot include it as an element within the framework of nature. As far as free will is concerned, both determinist and libertarian must minimize chance factors, for to the extent that such factors do operate in human experience and are to some extent determining agents in human choices and actions to that extent the freedom of the individual is limited or at times nullified.

[4] Whitehead, A. N., *Adventures of Ideas*, Part I, Chapter VI, Section I.

The whole subject of relative chance or fortuitous elements in both natural phenomena and human experience is so vast and complex that there is neither space nor need for a full-scale consideration of the problem here. Suffice it to say that all mechanistic as well as teleological metaphysical systems are in some measure based upon efforts either to explain or to explain *away* the predominant role which contingent factors play in human experience. But two aspects of it are directly relevant to the determinist-libertarian controversy. One of these concerns the identification of chance with the unknown factors of experience—or the tendency to fill in the gaps of our knowledge by recourse to another set of hypothetical assumptions also given the sanctity of "laws,"—namely, the theories of possibility, probability, and "chance." The other aspect of the problem concerns the extent to which these unknown factors, whether attributable to chance or not, actually do determine human action and actually do affect the course of human events.

Unless one defines the term in its narrowest and most theoretical sense, as presumably Hobbes did, meaning by the term simply "undetermined or uncaused events," one cannot possibly deny either the existence or the influence of chance factors in all areas of experience. The fact is everywhere so obvious that its reiteration seems fatuous. A thorough review of the preceding factors leading to any event might well reveal a thousand forces at both ends of the event all of which were causative agents in producing the incident. One thing *always* leads to another. But the fact remains that it is not simply or primarily the *occurrence* or the *succession* of these events which produces any given incident. It is the element of "contingency," or the *convergence* of these events into the particular pattern necessary for the production of this specific incident and no other incident, which is the all-important factor. And to what elements but those which for all practical and common-sense purposes we call "chance" can we attribute this convergence of causative factors?[5]

I return to my original question. What are the real distinctions, if any, between the determinist and libertarian position? Both schools affirm the existence on a purely empirical basis, at least, of certain broad principles of cause-and-effect relationships. Both necessarily recognize the presence and importance of unknown

[5] We should take note here of Whitehead's concept of "multiple causation" in which there might be an infinite number of alternatives or possibilities among the events issuing from particular sets of causes. It is the principle of "creativity" or "novelty" which operates as a selective agent among these causes. See especially *Process and Reality*, Chapter IV, Section VIII.

and presently unpredictable elements in experience. Both attest to the pragmatic reality and validity of individual free choice and free action, subject to the greater or lesser limitations of natural laws and antecedent forces. (Differences of opinion here would apply only to the nature, degree, and extent of these limitations). Both affirm the existence of personal moral responsibility in human behavior.[6] Finally, if the determinist is not a pre-determinist or fatalist, as most scientific determinists insist they are not, then his use of the term "determinism" is absolutely synonymous with causation and he is in all significant respects on common ground with a large body of non-determinists. The dispute would seem, therefore, to be, as Hobbes and Locke suggested, mainly a semantic one.

My present argument may be summarized as follows: That determinist and indeterminist alike are for the most part dealing in unknowns and attempting through various forms of rationalism to explain that which is at this stage of our knowledge inexplicable. It would then follow that there is no real or meaningful difference between the determinist and libertarian positions. There is certainly no significant pragmatic difference, so long as both points of view grant: (1) the operation of cause-and-effect relationships in large and basic areas of human experience; and (2) the reality and validity of free will—of the power of each individual at some crucial points of experience to choose to follow one course of action in preference to other courses when a set of alternatives is presented. In these basic respects, they are on common ground for all meaningful purposes; and further disputes as to Necessity, Causal Determinism, Causation, and "absolute" free will are futile, at least from the standpoint of practical human experience.

The issue is clearly not one of the existence or non-existence of *causative* factors operating in the realm of moral choices. It is rather a question of the nature, origin, and type of causative factors.[7] And on this issue we are confronted with such a vast quantity of unknown and perhaps unknowable elements that the

[6] It is a significant fact that modern logical empiricists like Dewey, Russell, and Whitehead lay stress on the prime importance of human effort, resolution, and self-directed activity in achieving social progress—an objective common to all three philosophers.

[7] Nowell-Smith again pinpoints the real issue when he observes that of the two major forms of determinist theory prevalent today, one is "liberal mechanical determinism" (which he believes "seems to presuppose a misunderstanding of explanation and prediction even within natural science"), and the other is the "obscure" theory, "that desires and other motives are somehow *like* mechanical forces" (*loc. cit.*, p. 331).

possibility of finding empirical answers within the conceivable future seems exceedingly remote. Where are the causes of a great poem, a great symphony, or a great mathematical theorem to be found? Products of the creative mind and imagination would seem to be of the same mental order as individual choices and decisions. All are results of the reflective, speculative, and creative processes of the human intellect. In terms of the particular, unique, and unduplicated form which characterizes them, they originate in some center of the human organism—possibly the cortex of the brain. To the extent that originality and creativity have any meaning at all, this is what they mean—that the origin and cause of the idea or set of ideas in question is the mind itself. Even an ultimate explanation of the physiological and psychological operation of these creative processes or a discovery of the precise antecedent factors leading up to the creative mental act would not in any measure remove the organism itself as a major *originating* and *causative factor*. And if an organism or entity (in Whitehead's terms) is *able* to originate, it is then obviously *free* to originate.

In any event, if so large a measure of agreement has been reached (as is evidently the case) on two principles: (1) the operation of a causative principle of some form in moral choices as well as in all other aspects of natural phenomena and human experience; and (2) the existence within the causative framework, regardless of its nature, of a sufficient measure of freedom of choice to establish moral responsibility and to maintain the principle of human dignity—if general agreement has been reached in these two crucial areas, then it would seem that the essential and *ethically* significant issues have been resolved and no important practical differences between the so-called determinist and libertarian positions are distinguishable.

At this point I should like to submit the proposition that the whole problem would to a considerable extent be clarified if the term "determinism" itself were to be applied only to concepts implying fatalism or pre-determinism, and that the term "causation" be applied to such concepts as we have been considering in this analysis and as are maintained by most "scientific" determinists. In current philosophical usage fatalistic determinism is distinguished from other types by being called "simple" determinism. But the fact is that the term "determinism" itself, whether modified or not, carries with it traditionally the connotation of fatalism and of causal necessity in the strictest and narrowest sense. It therefore also connotes the denial of the freedom of the will. This is clearly exemplified by the common juxtaposi-

tion of the two terms "determinism and free will" as though to imply that they are antithetical if not contradictory notions. But the concepts of causation and free will, as we know, are not regarded as antithetical by either scientific determinists or libertarians. Therefore, despite repeated efforts at clarification, the use of the traditional terms remains misleading—and especially so to undergraduate students of philosophy. As a means of further linguistic clarification I would also suggest that the simple term "will" be substituted for "free will." Logically, the term will *implies* freedom in the sense of autonomy of conscious action. To follow Hobbes' reasoning, the power of deliberation and freedom as applied to the operation of will are one and the same thing. Therefore, the term "free" as a modifier of will is tautological unless we are prepared to assign to the will a degree of freedom which goes beyond the limitations "contained in the nature and intrinsical quality of the agent."[8] And this few philosophers, be they scientific determinists or libertarians, are inclined to do. The point is that the term "free will," like the term "determinism," carries with it far more sweeping implications than most of those who use the term intend to convey. It would be helpful, therefore, generally to use the terms "causation" and "will" to convey the ideas which a seemingly increasing number of philosophers have in mind when they say "determinism" and "free will."

The final theoretical resolution of this issue can be reached when and *only* when we have a comprehensive knowledge of the operations of the universe. In other words, a complete ontology will first have to be established. And this is perhaps forever impossible.

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COMMENTS AND CRITICISM

QUALITY AS A BASIC COMPONENT OF THE WORLD

THE literature on quality, produced since Democritus had his provocative say on the subject, would make a lofty pile. But although the centuries have explored uncounted aspects of the topic, Professor Feibleman has recently broken new ground. The three main hypotheses which Feibleman has proposed are significant contributions to research on quality, and they command

[8] Hobbes, Thomas, *The Questions Concerning Liberty, Necessity and Chance* (Volume V of *The English Works of Thomas Hobbes*, S. W. Molesworth, ed., London, 1841), p. 367.

respectful attention. But they need some amendments or corrections.

First Hypothesis

Feibleman holds that qualities are one of the three constituents, or kinds of constituents, of the world, of which the other two are relations and reactions. He says:

> There are three elements in the world, and it would seem that we can reduce everything to some one of them. They are: qualities, relations, and reactions. But we cannot succeed in reducing any of these to one of the others. This is not to say, of course, that we cannot read one in terms of another, as we do, for instance, when we refer to reactions as dynamic relations, or to qualities as confused ideas (i.e., relations). But reading one in terms of another is not the same as reducing one to another; we have confused language, we have not merged phenomena.[1]

With this enumeration of qualities, relations, reactions as the three constituents of the world, one may profitably compare the slightly different enumeration which Feibleman offered on an earlier occasion:

> Let us . . . with this conception [of phenomenology as tentative ontology] in mind . . . determine what categories could most conveniently classify our impressions.
>
> First of all, we perceive *qualities*, or rather qualities which have some value (or disvalue) for us: the smell of cut grass, the taste of honey, the heat of the sun, the ache of tired muscles, and so forth. Secondly, we perceive . . . that they [the qualities] do not go on forever but instead have their limits. . . . Hence arises the perception . . . of difference; . . . . We have, in other words, perception of *relations*. . . .
>
> . . . We see . . . qualities emerging from other qualities and an alteration of relations. We see . . . change. . . . Thus we are justified in adding to the other previous two phenomenological categories the third category of the perception of *occasions*.[2]

The 1951 classification corresponds to that of 1956 in asserting that qualities and relations are the first two constituents of the world. But "occasions" as the name of the third constituent of the cosmos in the earlier classification became "reactions" in the later one. The 1956 preference for "reactions" as the name of the third constituent may represent a renewed interest in the classification proposed by Peirce, who, as Feibleman summarized him in 1951, "chose three categories to describe appearances: these are qualities, *reactions* and representations."[3]

[1] James K. Feibleman, "On Quality," this Journal, Vol. LIII (October 11, 1956), p. 630.

[2] Feibleman, *Ontology* (Baltimore: Johns Hopkins Press, 1951), pp. 155–156. The italics are Feibleman's.

[3] *Ibid.*, pp. 152–153. Italics supplied.

Several observations should be made respecting this classification of the elements of the world into qualities, relations, and reactions (or occasions).

(*a*) In the first place, one may ask what the relation is between "quality" (an abstract noun, usable in the singular only and constituting a sign for that *general* thing which Feibleman's article of 1956 is about, namely, that general thing which all qualitied things have), on the one hand, and "a quality" (a more or less concrete noun, usable in the singular or the plural and constituting a sign for one or more *specific* things, such as holiness or devilishness), on the other. Is quality an example of a quality (i.e., does the class of qualities include quality), or is quality only an attribute of all qualities?

The point of these questions is to determine whether Feibleman's enumeration of three elements of the world is exhaustive. If quality is an example of a quality (i.e., if the class of qualities includes quality), then Feibleman's enumeration passes its first test. But there are reasons why one might prefer to say that quality is only an attribute of qualities; for example, doing so would take better account of the fact that quality is general, while a quality (or the plural) is particular.

Perhaps, therefore, the enumeration of the elements of the world should begin with "quality and qualities" rather than "qualities" alone. In this case, one would probably wish also to substitute "relation and relations" for "relations" alone, and "reaction and reactions" for "reactions" alone (or "occasioning and occasions" for "occasions" alone).

(*b*) The domain of quality and qualities is reasonably clear, as is also that of relation and relations. But what is the domain of reaction and reactions (or occasioning and occasions)? Feibleman has given us some help on this, both in his book of 1951 and in his article of 1956. In the book he has written as follows: "An occasion . . . is an event in the external world of appearances that can be noted through the senses of the observers. Another name for occasion is fact. . . ."[4] In the article, he notes that we can "refer to reactions as dynamic relations" (in the excerpt quoted on an earlier page). But his next remark (in the same excerpt)—that "reading one in terms of another is not the same as reducing one to another"; i.e., that "we have confused language, we have not merged phenomena"—is by no means clear. Does he mean that reactions are not really dynamic relations (i.e., are not really relations) although we sometimes refer to them as if they were? If so, isn't he obliged to tell us why such a refer-

[4] *Ibid.*, p. 159.

ence is a case of confused language (i.e., why reactions are not dynamic relations)? There are good reasons why one might prefer to say that reactions (or occasions, events, or facts, which were taken as virtually the same in the book of 1951) *are* really relations.

For example, if one defined "a relation" as "an attribute connecting one thing with another" (assuming that "connection" is more primitive than "relation"), then a reaction (or occasion, event, or fact) would be a relation, for it is an attribute that connects one thing (an occurrence) with another (a moment or period of time).

Thus the need for Feibleman's third category is in doubt.

(*c*) To say that the world is made up of three classes is a challenge to name a constituent of the world which is not in any of the three. But one can name numerous things (constituents of the world) which do not seem to belong in any of Feibleman's three classes. Before any examples of such exceptions are named, however, it is necessary to say a word about process philosophy. Either one is a process philosopher or one is not. Either one speaks, as a process philosopher, in such terms as these:

> Chairs occur; i.e., there are occurrences of chairs. Perhaps, rather, there are occurrences of chairness. But in any case there are no such things as "chairs *qua* continuants" (except as continuing occurrents).

Or one can speak in the more usual language of those who are not process philosophers:

> There are such things as chairs. One can also speak of chairs' coming into being, coming into my range of vision, etc. But this does not preclude the being of chairs.

That Feibleman is not a full-fledged process philosopher is indicated by his willingness to say that qualities and relations not only occur but are, and also by his explicit statement, in the book of 1951, that

> . . . things may be viewed either as static or as dynamic affairs. When they are viewed in their static aspect, we term them things; when dynamic, we term them events. Nothing can be viewed through change, if change is to have any meaning at all, unless there is something undergoing change . . ., something quasi-permanent. . . .[5]

We are now in a position to name some examples of things which do not belong in any of Feibleman's three classes:

Wood. Wood is not a quality. (Woodenness is a quality.) Wood is not a relation. ("Being woodier than" is a relation.)

[5] *Ibid.*, p. 298.

Wood is not a reaction or occasion or event. (The formation of wood, or the appearance of wood in my range of vision, is a reaction or occasion or event.) Feibleman, of course, could call "wood" a reaction if he were a full-fledged process philosopher, but he is not.

A tree. A tree is not a quality. A tree is not a relation. A tree is not a reaction or occasion or event.

A wooden horse. A wooden horse is not a quality. A wooden horse is not a relation. A wooden horse is not a reaction or occasion or event.

Perhaps, therefore, a better classification of the elements of the world than the triple classification which constitutes Feibleman's first hypothesis would be:

(1) Attributes, including the attribute of being an attribute, i.e., including attributeness. (This class could be broken down so as to cover qualities and relations.)
(2) Substantives (i.e., all entities other than attributes), including wood, wooden horses, the Wooden Horse before Troy, the United States of America, Cicero, time, matter, etc., etc.

Second Hypothesis

Feibleman has said, in 1956, that qualities are simple, by definition. His statement of this position is as follows:

> It is time for a definition of quality [note his use of the general singular term], a definition which will enable us to meet the requirements of qualities [note the plural of "a quality"] both in actuality and in abstraction as essences. A quality is *that which is ultimately simple.* Qualities are incapable of further analysis. The analytical elements of that which produces the qualities are logical and have their own qualities. Qualities have their corresponding wave-lengths, which are quantities and which as such can be analyzed. Numbers are sets having elements. But the qualities to which they correspond have no elements.
>
> There are no other items in existence which are ultimately simple, and any that are must be qualities. To some extent the justification of this definition must depend upon the inability to demonstrate that there are things in the world which are ultimately simple and which are not qualities. There can be no final demonstration of this sort for it would depend upon an inexhaustible enumeration. The burden of the proof, however, remains upon the opposition to the definition.[6]

In the book of 1951, he has made the same point, with further examples:

> . . . they [qualities] are simple and unanalyzable as qualities. Color, for instance, may be analyzed into wave-lengths, but in so analyzing no color is left. The analytical elements of color can be discovered and specified, but

[6] Feibleman, 1956 article, p. 626. The italics are Feibleman's.

color as color cannot be broken down any further. Qualities are decidedly and ultimately simple. This is true of the qualities which emerge at any level. The hardness of ice may be the result of the slowing down of the speed of the molecules of water, but the hardness of ice is an ultimate quality. . . .[7]

Of special interest, as regards these two quotations on the simplicity of quality, is the sentence in the 1956 article which justifies the definition of quality as simple by saying that such justification relies on "the inability to demonstrate that there are things in the world which are ultimately simple and which are not qualities." One may venture to make explicit as follows the philosophy of definition which is implicit in Feibleman's remark on justification: A definition is justified if the actual scope of the definiens coincides with the actual scope of the definiendum. (I pass over without quarrel the fact that this kind of justification is applicable only where the actual scope of the definiens is not in dispute, the actual scope of the definiendum is also not in dispute, and the only question involved is whether the two coincide.)

On the basis of this view of the justification of a definition, Feibleman challenges the opposition to produce any "things in the world which are ultimately simple [i.e., which are admittedly in the scope of the definiens] and which are not qualities [i.e., which, being outside the scope of the definiendum, show that the definiens and the definiendum do not coincide]." Shouldn't he also challenge the opposition to produce something which is a quality and which is not simple?

But there are, it would seem, examples of both kinds of exceptions to the definition. As an exception to the idea that all simples are qualities, we might mention "a point." Isn't it simple, but not a quality? As an exception to the idea that all qualities are simple, we might mention "the autumn quality of leaves." Isn't it a quality, but not simple? I.e., doesn't it include crinkliness, brownness or yellowness, and other elements as well?

Perhaps it would be better, therefore, to define quality or a quality in some other way than with reference to simplicity or complexity. For example, one might define quality as that which is common to all qualities, and then define a quality as an attribute which is not a relation.

Third Hypothesis

Feibleman consistently carries out his point that qualities are simple. He says, for example, in the article of 1956, "We measure *amounts* of quality, we do not measure quality." But isn't "measure" identical with "measure amounts of"? Can

[7] Feibleman, *Ontology*, pp. 157–158.

we measure the speed of light or the diameter of the earth or the length of a fish without measuring an amount? If anger is a quality, don't we say that an individual was angrier today than he was yesterday? What is wrong with measuring a quality? Feibleman might reply by citing a further passage in his essay of 1956, which reads:

> The color, red, is conventionally described in dictionaries as its wave-length and place in the spectrum. But this is not red, this is its wave-length and the circumstances under which red is to be found and what its position is. The color, red—red as red—is left undefined, if we understand by definition the way in which for instance a triangle can be defined by three points. There is a sense in which qualities are ineffable because of the inadequacies of language; qualities are indescribable.[8]

The significant phrase here is "There is a sense in which." Yes, qualities can be so defined as to be ineffable and unmeasurable (i.e., there is a choosable sense in which qualities would be defined as ineffable and unmeasurable). But one could point out, against such a definition, that it does not conform to common usage, and its departure from common usage is not essential for the sake of precision.

Therefore, in addition to defining qualities in terms other than those of simplicity, Feibleman would probably do well to omit unmeasurability from the list of qualities of qualities.

WILLIAM GERBER

WASHINGTON, D. C.

NEW BOOKS

ADLER, MORTIMER J., AND MAYER, MILTON: *The Revolution in Education.* With an Introduction by Clarence Faust. [Chicago]: Univ. of Chicago Press [1958]. viii, 224 p. $3.75.

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[8] Feibleman, 1956 article, p. 632.

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NOTES AND NEWS

Geddes MacGregor, Rufus Jones Professor of Philosophy and Religion at Bryn Mawr College, will be Visiting Professor of Religion at the University of Southern California in Los Angeles, 1958–59.

H. D. Lewis, Chairman of the Department of Philosophy, King's College, University of London, will be Visiting Professor of Philosophy at Bryn Mawr College, 1958–59.

C. West Churchman, previously Professor of Engineering Administration at Case Institute of Technology, has been appointed Professor of Business Administration, University of California at Berkeley, beginning July 1, 1958.

The New Mexico Philosophical Society held its Ninth Annual Meeting at the University of New Mexico on May 10–11, 1958. Papers included: "Truth in Art," by John H. Haddox; "The Paradox of the Infinite Will," by Father Timothy R. Sullivan; "The Status of Russian Philosophy," by James E. Augerot; "On Some Applications of Philosophy," by Howard Sherman; a report on the work of the Committee for Philosophy in Education of the American Philosophical Association, by H. G. Alexander; and a report on the meeting of the Philosophy of Education society, by P. B. Loren.

Officers elected for 1958–59 are: Brother Leo Kinneavy, St. Michael's College, *President;* Parke B. Loren, University of New Mexico, *Vice-President;* H. G. Alexander, University of New Mexico, *Secretary;* and Archie J. Bahm, University of New Mexico, *Treasurer.*

An International Congress of Medieval Philosophy, organized by the Centre De Wulf-Mansion of the Institut Supérieur de Philosophie, Université de Louvain, will be held at Louvain and Brussels, August 28 to September 4, 1958. The general theme of the Congress will be: *Man and His Destiny According to the Thinkers of the Middle Ages.*

The President of the Executive Committee of the Congress is L. De Raeymaeker, Président de l'Institut Supérieur de Philosophie; the Secretary, Suzanne Mansion, Secrétaire du Centre De Wulf-Mansion.

The Moses Coit Tyler Prize in American Intellectual History has been made possible by the generosity of the Cornell University Press and by action of the Council of the American Historical Association. The prize is to be offered in 1959 for the best complete original manuscript submitted in English on American intellectual history. The prize consists of $1500 in cash and publication by the Cornell University Press. Manuscripts must be submitted no later than June 1, 1959.

All manuscripts and all correspondence relating to the Moses Coit Tyler Prize should be addressed to: Professor Charles A. Barker, Chairman, Committee on the Moses Coit Tyler Prize of the American Historical Association, The Johns Hopkins University, Baltimore 18, Maryland.

The American Association of University Women offers a considerable number of fellowships for women for 1959–60. National fellowships, ranging in value from $2,000 to $4,000, are open to American women who show distinction or promise of distinction in their chosen fields of study, and are offered in two categories: (1) to women who already hold the doctorate; (2) to women who will have fulfilled all the requirements for the doctorate, except the dissertation, by the time the fellowship year begins (July 1). The AAUW also offers for award for 1959–60 a number of international fellowships, $2,000 each, for which American women may apply. For these awards, American women submit their applications through the AAUW; women of other countries through the federation of university women in their own country.

Both national and international fellowships are unrestricted as to field and place of study, except that the international fellowships must be used in a country other than the candidate's own. The minimum requirement for both national and international fellowships is that candidates must have completed the residence requirements for the doctorate before the fellowship year begins on July 1, 1959. Requests for application forms should include a statement of academic status.

The application deadline is December 1, 1958. Successful candidates will be notified not later than March 1, 1959. Application forms may be obtained after July 15 from: *Associate,* AAUW Fellowship Program, 1634 Eye Street, N. W., Washington 6, D.C.

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